

[LAUNCH] What Is the Role of the Teacher in Engaging Students in Tasks?

The teacher's role consists of the following:

- Setting the context in terms of both the situation and the mathematics, which includes reviewing relevant previous knowledge
- Establishing the expectations, procedures, and behaviors
- Establishing mathematical language and model appropriate uses of mathematical language
- Issuing a challenge and establish an objective for the work
- Providing a transition to the Explore phase of the lesson

[EXPLORE] What Is the Role of Teachers in Promoting and Aiding Classroom Explorations?

The teacher's role consists of the following (*Let go and tune in!*)

- Monitoring (group) work while observing individual performances
- Promoting on-task behavior and perseverance by confirming and redirecting students when needed
- Asking probing questions, and use techniques of hinting, cueing, and scaffolding
- Issuing extra challenges or modify task to meet the needs of all students

[SUMMARIZE] What Is the Teacher's Role in Making the Mathematics More Explicit?

The teacher's role consists of the following:

- Establishing and promoting classroom discourse
- Promoting discussion of strategies as well as solutions
- Expecting students to present their ideas and conjectures and the evidence they have to support these
- Asking questions that push for deeper understanding of the ideas and for making mathematical connections
- Helping the students make the mathematics they encounter more explicit by abstracting mathematical concepts, ways of thinking, models, and strategies that have relevance in other situations and promote application of what was abstracted from the learning
- Assessing student progress

APPLY, CONNECT, and EXTEND

For additional information and lesson examples see: *About Teaching Mathematics: A K-8 Resource*, by Marilyn Burns, math Solutions Publications, 1992. Page 32 and on.

Instructional strategies that help teachers to gradually bring students to take on problems that are more complex on their own:

RECALLING RELEVANT PREVIOUS KNOWLEDGE

- Teacher inventories students' previous relevant knowledge (diagnostic) and carefully builds the necessary completeness through guided short activities addressing a single concept, idea, or skill (foundation). [Do not confuse with Direct Instruction]
- Over time shift this responsibility to students, possibly as a learned small group process (self-diagnostic)

SCAFFOLDING

- Teachers reduce the difficulty of a learning task by helping students with the most complex aspects of it and gradually give more responsibility to the learner as time passes.
- Scaffolding can also be accomplished by doing less complex versions of the task first and then gradually increasing the complexity of the task.
- It can also be accomplished by revisiting previous problems that are related.

MODELING (Do not confuse with demonstrating)

- Teachers, or other students, think aloud or act out how they would approach the problem, followed by a discussion.
- It is preferred to have other students model first.
- If the teacher is first, you run the risk of this being the only way (by authority) things are done.

HINTING

Teacher asks the student(s) **probing questions**:

Can you tell me why you counted by fives in this problem?

or redirects attention (**cueing**).

You seem to be stuck with the numbers. Why don't you try to draw a diagram of the situation and then see if your numbers make sense.